

ONR Small Business Webinar

Dr. Richard Carlin – Naval Accelerator

Mr. Rob Palisin – Information, Cyber and Spectrum Superiority

CDR Jeff Dixon - Ocean Battlespace and Expeditionary Access



Mr. Michael Resner – Mission Capable, Persistent and Survivable Naval Platforms

Mr. Reggie Williams – Warfighter Performance

LtCol Jarrod Larson – Aviation, Force Projection and Integrated Defense

**Acting Small Business Director
Ms. Ellen Simonoff**

The Office of Naval Research (ONR) is constantly looking for innovative scientific and technological solutions that can address current and future Navy and Marine Corps requirements. We want to do business with people and organizations with ground-breaking ideas, pioneering scientific research, novel technology developments and first-class support services. ONR announces current areas of interest through Broad Agency Announcements, Funding Opportunity Announcements, Special Program Announcements, Requests for Proposal or Quote, Special Notices, and Requests for Information. Web Address: <https://www.onr.navy.mil/work-with-us/funding-opportunities>





ONR CODE 31

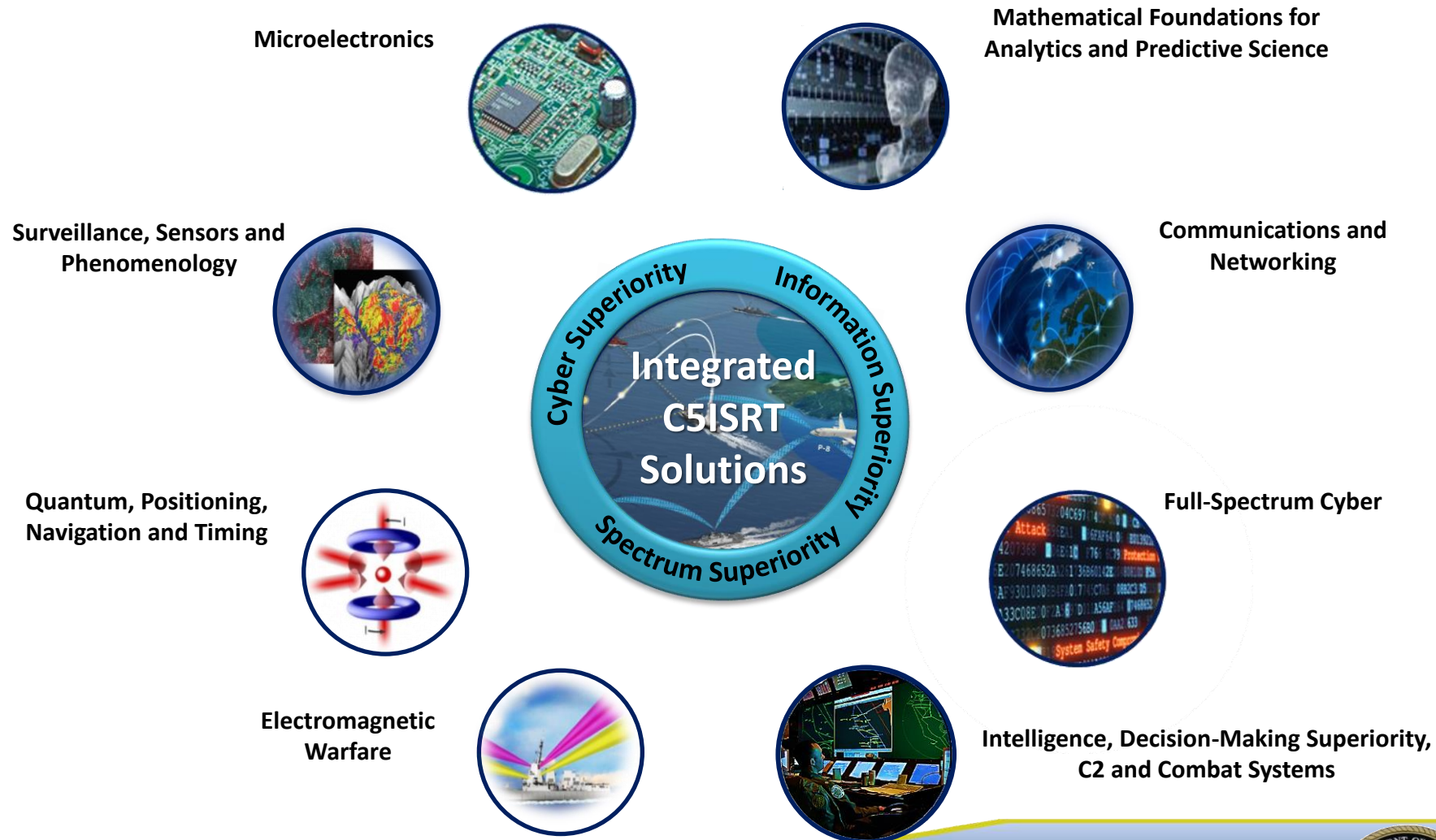
Information, Cyber and Spectrum Superiority Department

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Information, Cyber and Spectrum Superiority Department

CODE 31 – Eight Principle Thrusts and Contacts



Code 31 Areas of Interest

Mathematics, Computer and Information Sciences

- Command and Control
- Assured Cyber Effects/Expeditionary Cyber
- Cyber Security and Complex Software Systems
- Applied & Computational Analysis
- Communications and Networking
- Computational Methods – Optimization, Large Scale Distributed Decision-making, Auto Image Understanding
- Mathematical and Resource Optimization
- Machine Learning, Reasoning and Intelligence
- Mathematical and Data Sciences

Electronics, Sensors and Network Research

- Active Aperture Array
- Electromagnetic Materials
- EO/IR Sensors and Sensor Processing
- Precision Navigation and Timekeeping
- Atomic, Molecular and Quantum Physics
- Electronic Devices, RF Semiconductors and Amplifiers
- Expeditionary Electronic Warfare – C4
- Quantum Information Science
- Electronic Warfare
- RF Surveillance



Code 31 SBIR Proposals and Opportunities

Code 311:

- At-Scale Detection of Hardware Trojans on Chip Circuits
- Analysis of Non-destructive Detection of Trojans
- FPGA Vulnerability Analysis Tool
- Protocol Feature Identification and Removal
- Redbox: Red Team in a Box
- Late-Stage Software Feature Reduction Tool for Security
- Retrofitting Code into Embedded Binaries
- Binary code Randomization for Attack Sensitive Software
- Orthogonal Approach to Malware Detection and Classification

Code 312:

- N-Polar GaN HEMT in Low-Cost Process Technology for mm-wave Transceiver Applications
- Develop and demonstrate advanced airborne radar modes for the detection and discrimination of small Unmanned Aerial Systems
- Extending the Surveillance Horizon for Improved Ship Self-Defense Against Supersonic and Hypersonic Sea Skimming Missiles
- Airborne Radar Based Detection and Discrimination of Small Unmanned Aerial Systems and Birds For Collision Avoidance and Force Protection





ONR Department of Ocean Battlespace and Expeditionary Access

Code 32

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Ocean Battlespace Sensing and Expeditionary Access Department



Anticipated Opportunities

- **November's SBIR/STTR Broad Area Announcement for Code 32 Will Include Solicitations in The Following Technology Areas:**
 - *Small Explosive Ordnance Disposal Munition Technology*
 - *LIDAR Remote Sensing*
 - *Underwater Acoustic Source Development*
 - *Atmospheric Spectral Analysis*





Mission Capable, Persistent, and Survivable Naval Platforms - ONR 33

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ACCELERATING TO THE NAVY & MARINE CORPS AFTER NEXT

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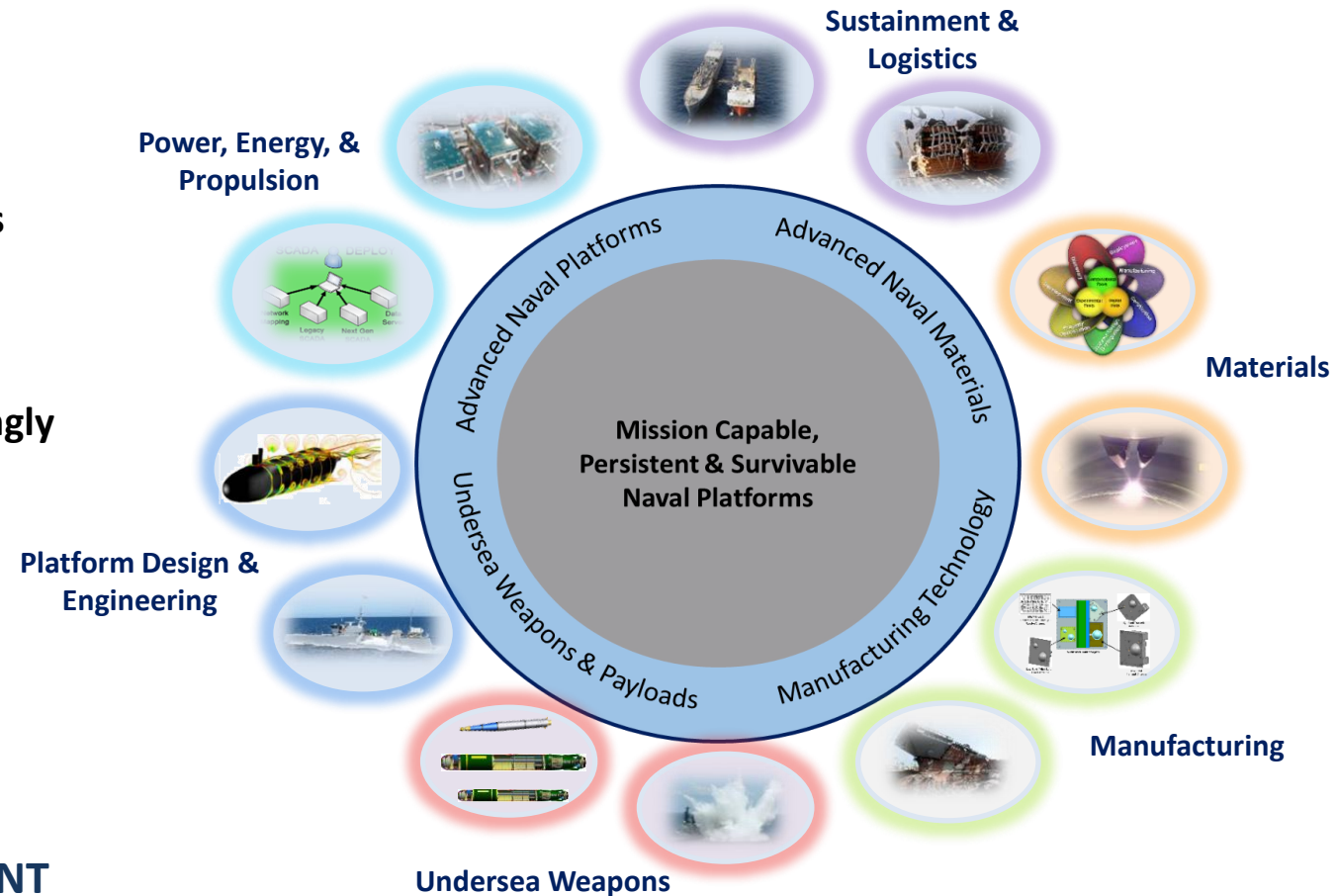


Naval Platforms

Mission Capable, Persistent, and Survivable

AT A GLANCE

Concepts, systems and component technologies that improve the performance and survivability of naval platforms in an increasingly distributed yet interconnected force.

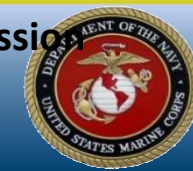


WHY IS THIS IMPORTANT

Threats to the fleet/force are increasing in number, range, precision and effectiveness.

Sustainable operations in increasingly diverse environments require affordable, modular survivable and rapidly upgradeable platforms.

Maritime superiority requires enduring, self-sustaining platforms able to deter/defeat aggression through overwhelming capability.



Focus

Delivering capability now, and for the future fight!

- Capacity - Platforms
- Readiness
- Resiliency – all aspects
- Lethality
- Autonomy
- Endurance
- Manufacturability
- Speed





ONR Code 34 Warfighter Performance

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WARFIGHTER PERFORMANCE



Code 34 Research Portfolios

S&T Areas of Interests

- **Division 341: Human & Bioengineered Systems Division Portfolios**

- Advanced Modeling and Simulation for Training and Analysis
- Bio-Inspired Autonomous Systems
- Cognitive Neuroscience of Perception and Attention
- Cognitive Science for Human Machine Teaming
- Cognitive Science for Naval Adaptive Training
- Command Decision Making
- Computational Neuroscience
- Human Interaction with Autonomous Systems
- Manpower, Personnel and Training Information Sciences
- Social Networks and Computational Social Science

- **Division 342: Warfighter Protection and Applications Division**

- Auditory Neuroscience & Performance
- Bio-inspired Signature Management
- Biological and Physiological Monitoring and Modeling
- Biomaterials and Bio-nanotechnology
- Gut Microbiology for Warfighter Resilience
- Marine Mammal Health Microbial Electrochemical Systems
- Naval Force Health Protection Stress Response
- Synthetic Biology Undersea Medicine & Performance



SBIR/STTR Opportunities

- *Decision making*
- *Integrated training*
- *Undersea medicine*
- *Knowledge sharing*





Aviation, Force Projection and Integrated Defense

Code 35

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Code 35 Core Competencies



Anticipated Opportunities

- **November's SBIR/STTR Broad Area Announcement for Code 35 Will Include Solicitations in The Following Technology Areas:**
 - *Hypersonic Flow*
 - *Solid State Power Modules*
 - *Aircraft Propulsion Systems*
 - *Electric Compressors*



Naval Accelerator

Richard Carlin
Department Head Code 36
Office of Naval Research



Naval Accelerator (Code 36) Programs

R&D Programs Delivering Technologies & Early Prototypes

- *Universities (NEPTUNE)*
 - *Naval Enterprise Teaming with Universities for National Entrepreneurship (NEPTUNE)*
- *NR&DE/Warfare Centers (NIPA)*
 - *Naval Innovation Process Adoption (NIPA)*
- *Small Businesses/SBIR (ADAPT)*
 - *Accelerated Delivery & Acquisition of Prototype Technologies (ADAPT)*

Prototype Validation & Scaling

- *NR&DE/Warfare Centers (ESTEP)*
 - *Energy Systems Technology Evaluation Program (ESTEP)*
- *Dual-Use & Commercial Sector*
 - *H4XLabs/SBIR Dual-Use Business Accelerator*
 - *Elemental Excelerator (HI & CA), Congressional Interest*
 - *Launch Alaska (AK), Congressional Interest*





- NavalX is a platform to ...

- Build networks and connect people
- Increase partnerships with traditional and non-traditional partners
- Enable collaboration on warfighter challenges
- Accelerate the pace of discovery, learning, experimentation
- Foster innovation capacity and agility
- Develop, reinforce, and maintain regional innovation networks and relationships



Current NavalX Tech Bridges



SBIR Accelerated Delivery & Acquisition of Prototype Technologies (ADAPT)

Description:

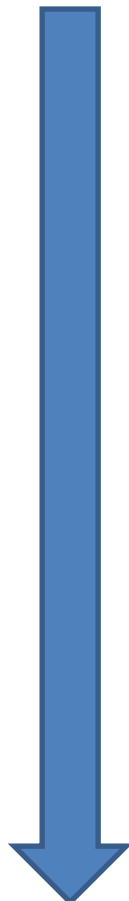
“Accelerated Delivery and Scaling of Viable Operational Prototypes using Startup and Venture Capital (VC) Principles”

Key Characteristics:

- Prototype-focused to utilize NDAA prototype authorities
- Milestone-driven award execution to accelerate delivery of operational prototype(s) and strengthen SBIR-DON engagements
- Implements new Naval Business Growth Accelerator (H4XLabs) to access private investments and facilitate prototype/product scaling
- Implements OTA business practices to eliminate barriers to scaling and acquisitions
- Flexible BAA Use: In-Cycle Special Topics, Out-of-Cycle Joint Topics, etc.



ADAPT1.0/2.0 SBIR Solicitations



Process Steps	ADAPT 1.0 (on-going)	ADAPT 2.0 (20.1 SBIR BAA)
Topic Development	Sourced from Electric Boat (EB) Shipyard	Source from NAVSEA - TIIL*, SYSCOMS, PEO, etc.**
SBIR Solicitation	Out-of-cycle for FST Direct-to-Phase II (DP2)	N20.1 Call Phases I + II
Contracting	<i>41 Days for 13 DP2 OTAs</i>	Accelerated Phase I Awards
Phase I	N/A	H4XLabs Accelerator for DON Customer Fit/Dual-Use & Link to Defense Investment Network
Phase II	Milestone-Driven Rounds I-IV	Milestone-Driven Rounds TBD
Phase IIB	1:1 SBIR:Non-SBIR(gov) Cost-Share for amt. > \$500K	Sequential \$1.5M Phase IIB with Cost-Share
Phase III	Non-SBIR	Non-SBIR

*TIIL = Tactical Innovation Implementation Laboratory

TIIL Received Agility & Accountability Awards Program Award from ASN(RDA)/NavalX!!

DON SBIR/STTR REENGINEERED

Navy Technology Acceleration Pilot (19.3 Topics)

Status Summary:

Record setting interest and response.

347 proposals received, a 10X Increase

Machine Learning and Artificial Intelligence (210 proposals); Autonomous Behaviors (65 proposals); and, Advanced Technologies for Training (72 proposals)

Pilot Objective: Incubating a Broader Base of Ideas

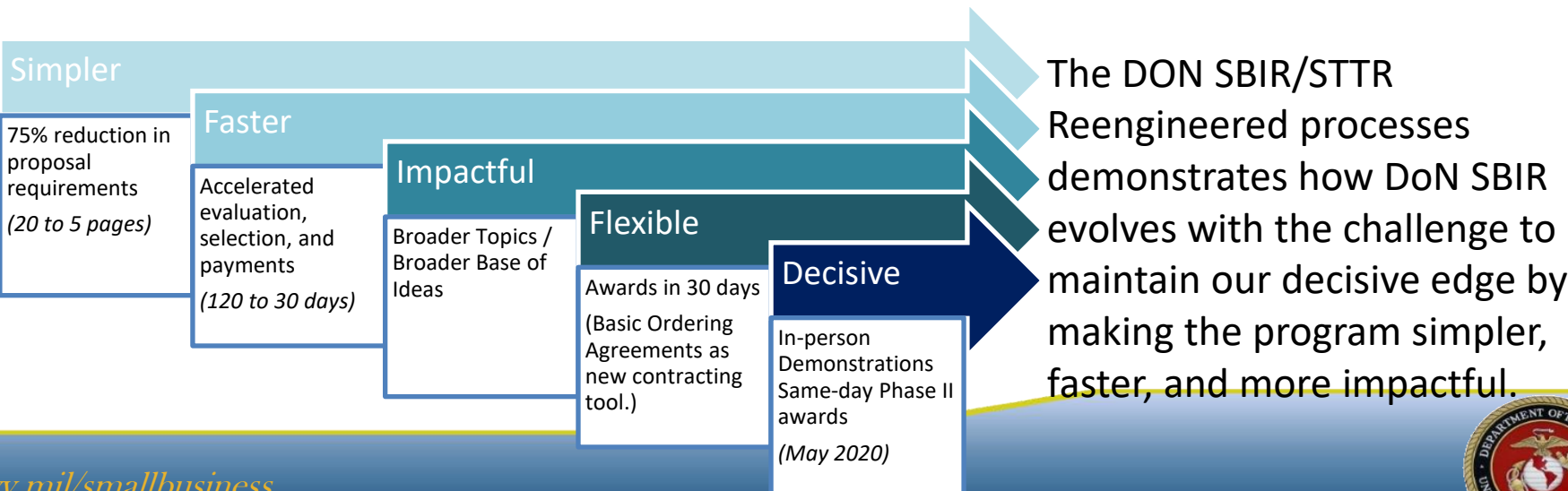
115 versus 12 – number of proposals received for Technology Acceleration Topics versus average number of proposals for traditional topics

Simpler: 98% of New Entrants Proposed to Technology Acceleration Topics

Nearly all 1st time proposers chose a Technology Acceleration Topic instead of a traditional topic
Overall, 38% of Technology Acceleration proposers were new entrants

Faster – Accelerated Evaluation and Selection

347 evaluations completed ahead of schedule; **79** proposals selected for award
~\$12M Phase I awards completed by 15 November, **81%** faster than traditional processes (19.3 Closed 23 Oct)

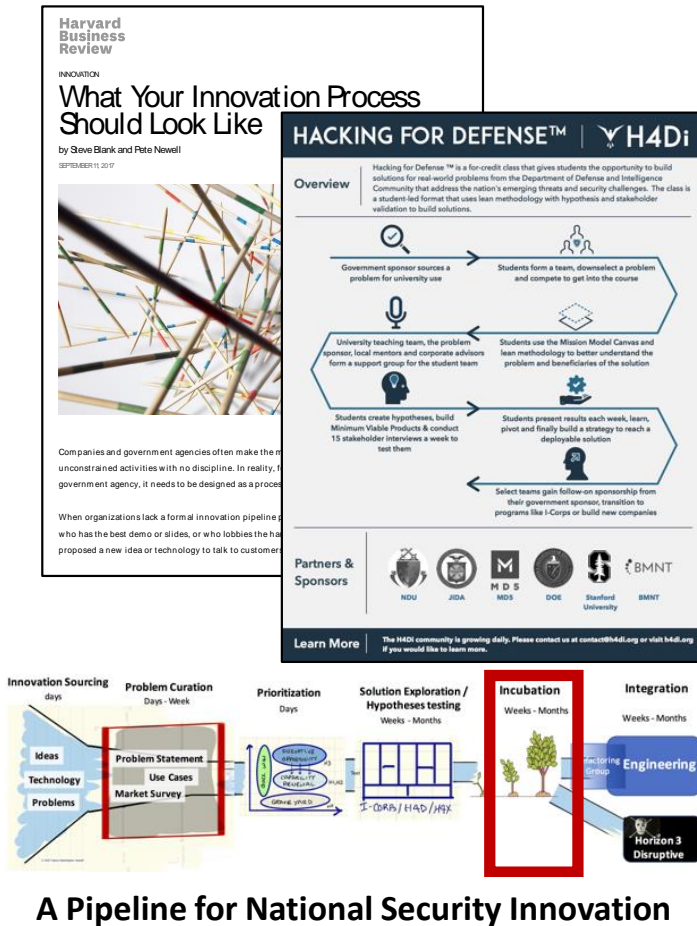


H4XLabs

Naval Business Growth Accelerator

Purpose Driven – Problem focused

- Reinvents the business accelerator model by sourcing startups or spinouts that are **created around sectors of problems** as defined by the sponsors
- Creates viable freestanding companies
- **Bridges** government and primes to technologies and startups focused on their area of interests
- Focused on **dual-use technologies** that serve both national security and commercial use cases
- Operates at **scale**
- Works with startups/companies at **any stage** in their lifecycle

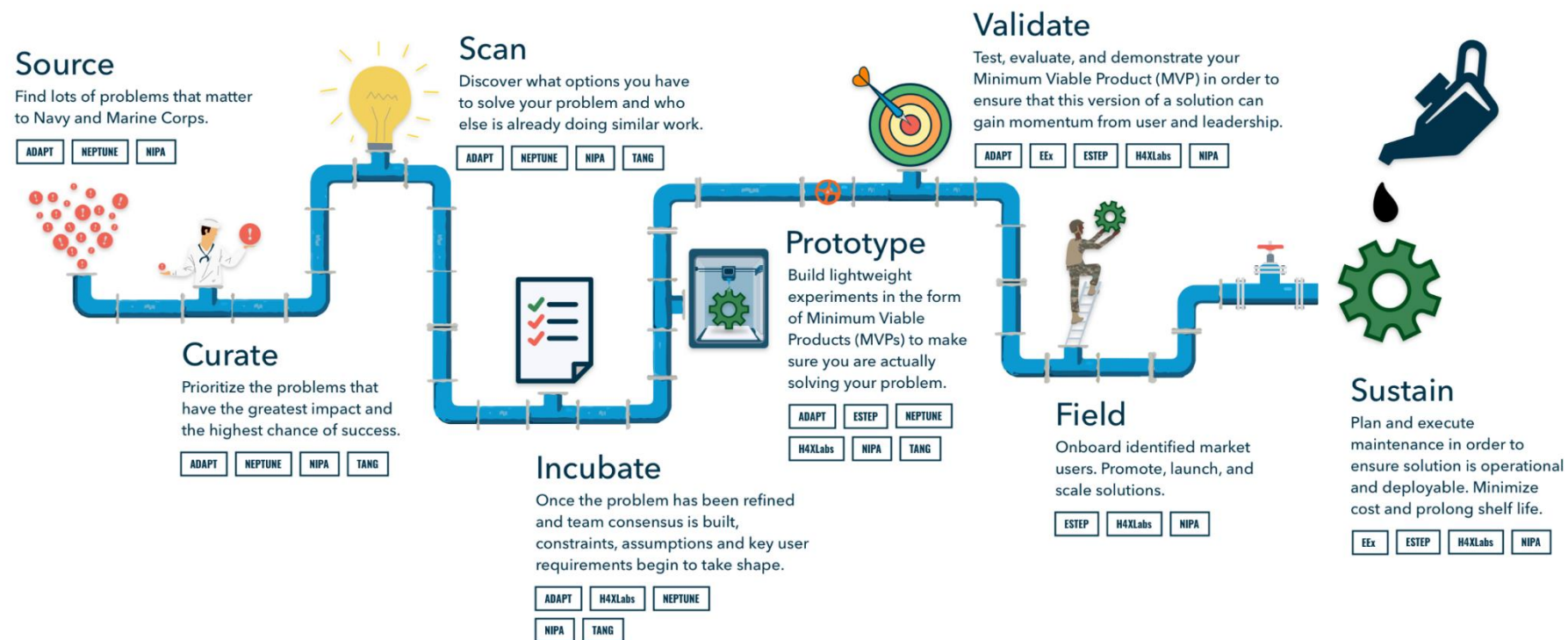


A Pipeline for National Security Innovation



Innovation Pipeline

NAVALX Innovation Pipeline



Tech Bridges

